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In order to provide a wider variety of curriculum offerings and meet the individual needs of students, the Western States Small Schools Project (WSSP) realized it would be necessary to revise or alter drastically the existing organiztional structure of educational programs. Modular scheduling has become the most popular method of meeting this necessity in the WSSP. Advances in computer technology have made this approach possible and aid greatly in the provision of flexibility in scheduling. The participating schools characteristically approached the implementation of this method in three phases: (1) the exploratory phase; (2) the developmental phase; and (3) the operational phase. Descriptions of these phases and the role of the administrator and the consultants necessary for the program are provided. (DK)

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WESTERN
STATES
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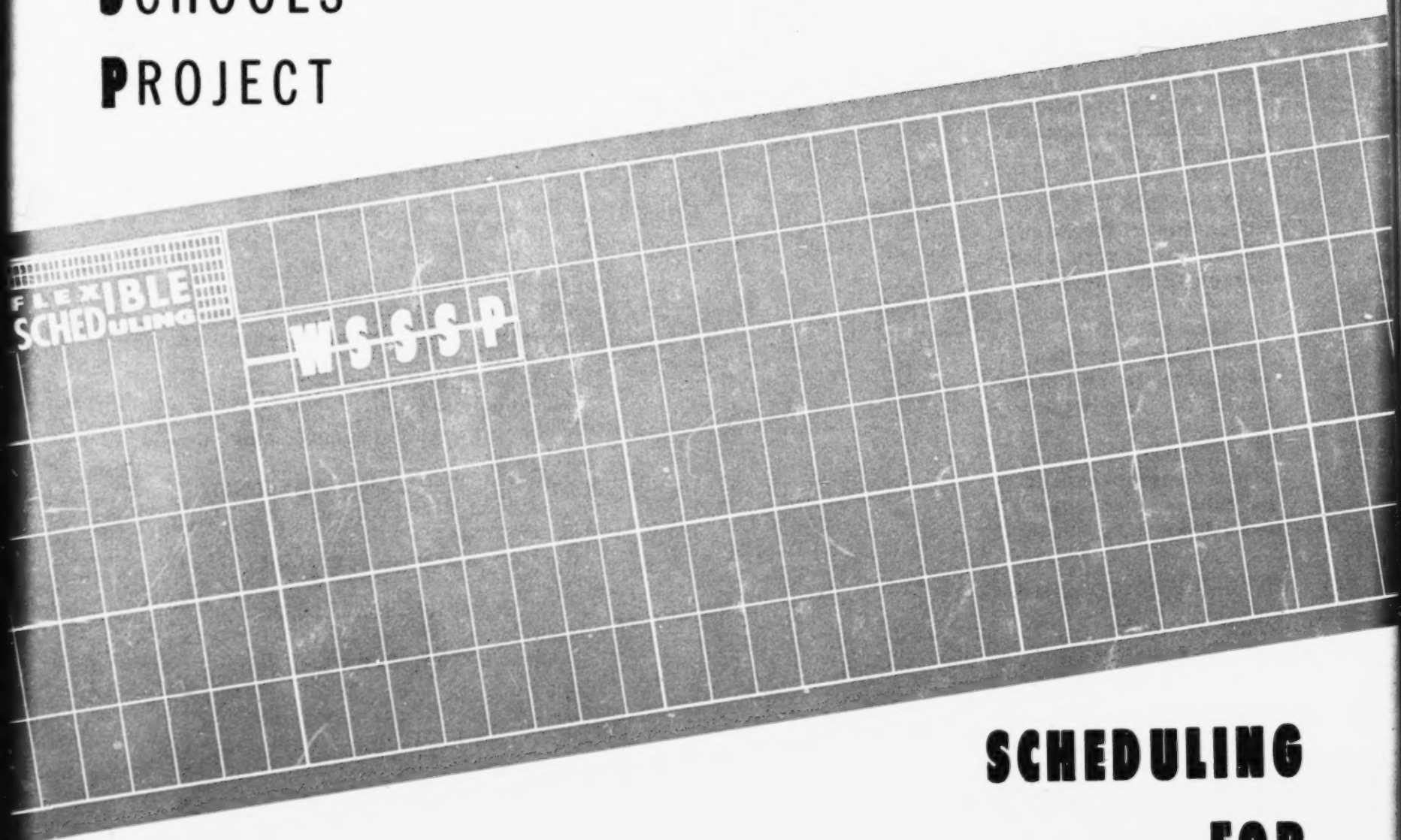

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INTRODUCTION

THE WESTERN STATES SMALL SCHOOLS PROJECT

The Western States Small Schools Project exists as a result of an agreement, or series of agreements, among five western state educational agencies. In the basic agreements the several states committed themselves to cooperatively identify and develop solutions to problems common to the smaller, more isolated rural schools of the region.

The Western States Small Schools Project has been funded, since its beginning in 1961, by Ford Foundation grants to the Arizona, Colorado, Nevada, New Mexico and Utah state educational agencies.

As the Western States Small Schools Project developed in the several states, many educators from the smaller schools became involved in programs designed to improve or strengthen the educational programs in their own schools. As the involvement progressed, there developed a genuine concern over the apparent lack of attention being given to individual student needs. While, of course, this problem exists in other than small schools, it does appear to be more acute where there is a combination of very small (limited) enrollments and the full range of human variability.

WHY FLEXIBILITY IN SCHEDULES IS NEEDED

As a result of the concerns noted above, the WSSSP schools developed programs designed to attack the problem of how best serve the diverse needs of individual students in smaller schools. These programs were tailored to the small school situation. They were not duplicates of programs developed for larger schools because it was felt that programs suitable for the smaller schools would have to be geared to the small school itself if the potential strengths of smallness would be realized.

Specifically, attempts were made to develop programs that would:

1. Place a greater share of the responsibility for learning upon the individual.

2. Encourage pupils to compete with their own record.

3. Encourage pupils to progress at rates commensurate with their own individual capacities.

4. Establish a sequential curriculum free of artificial barriers (grade levels and promotion dates).

5. Individualize both instructional materials and instructional practices.

6. Change the role of the teacher from presentor of information to director of learning.

As educators participating in the WSSSP began to devise such programs, it became apparent that if they were to succeed it would be necessary to modify (or, in some instances, drastically alter) existing patterns of organizational structure.

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It was felt that the existing school schedules were a roadblock to arrangements designed to meet individual student's needs. Consequently, a major effort was made to develop new organizational patterns that would facilitate educational programs of the type already described.

WHAT IS MODULAR SCHEDULING

While several approaches have been taken to modify the traditional "lock-step" schedule and make the schedule serve more adequately the school's program needs, "modular" scheduling has become the most popular and, thus, is the most commonly used approach to scheduling in WSSSP schools. Modular Scheduling divides the school day into equal units which are considerably shorter (10 min., 20 min., or 30 min.,) than the traditional 55 minute class period. The shorter units called "modules" are then arranged in various combinations to serve the variety of individual requests of students and teachers for time, spaces and groupings.

The use of computer technology greatly increases the capacity to accommodate in a schedule a wider variety of requests. Computer-generated schedules have been developed and used successfully in a number of small high schools. The use of the computer to generate schedules holds considerable promise for providing needed flexibility to innovate in the smaller schools.

This booklet has been developed to describe how certain schools in the WSSSP have used modular scheduling for this purpose.

MODULAR SCHEDULING IN WSSSP SCHOOLS

WHY WE WENT TO MODULAR SCHEDULING

In describing the activities of several schools in which modular scheduling has been carried on, it should be both noted and emphasized that modular scheduling is but one type of scheduling modification developed within the framework of the Western States Small Schools Project.

Each of the schedule modification efforts, regardless of direction, had as its very basic purpose the identification of an organizational pattern which would facilitate a program in which the focus could truly be on the individual. Each approach, to some degree, moved toward attainment of this basic goal.

Modular scheduling, to many, seemed to be the best approach. Here are some of the reasons given by teachers and principals:

"There was a strong feeling in our school that students needed to develop study habits which would help them as they moved into either the adult world or the college atmosphere where, in either instance, they would have no adult standing over them or prodding them on."

"It was felt, in our school, that students should have more time, or more opportunities, for making decisions."

"If we could have more time allowed for student planning, we feel that groups such as the student council will be more productive; that the students will provide valuable assistance in many aspects of decision-making."

"We felt that students and teachers should learn to exchange ideas, philosophies, objectives, etc., as they relate to school and community life. We needed a schedule in which this exchange could take place."

"It was felt that resources and facilities within the school, such as the library, materials center, etc., could be utilized to a greater degree through a program of flexible scheduling."

"If students are to grow in responsibility and to become increasingly more independent learners, they need the opportunity (and the expectation) to so develop. Through modular scheduling, together with its provision for independent time, resource center time, etc., we hoped to be able to provide such an opportunity."

"We hoped to be able to provide the time and the flexibility necessary for teachers to diagnose student needs. At the same time, we hoped to be able to provide the time and flexibility needed for teachers to prescribe learning activities which would meet the students' needs."

"Some courses require large blocks of time while others require shorter, but more frequent, blocks. We saw in modular scheduling a way to achieve the variety of time blocks we needed."

"In our school we wanted to be able to provide for variations in the mode of instruction. We wanted to provide time and space for large group instruction, small group instruction, laboratory type instruction, and independent instruction."

"Small schools have a responsibility to provide as broad an educational programs as is possible. We felt that modular scheduling would allow us to considerably expand our course offering."

"We felt that through modular scheduling we could have a schedule which was, in reality, a product of the curriculum instead of having a curriculum which was dictated, limited, or restricted by the schedule."

PROCEDURE FOR MODIFYING EXISTING SCHEDULES

In examining the procedures followed by the several participating schools, it becomes apparent that the various schools approached the problem of initiating a modular schedule in somewhat different ways. In each instance the method followed was, in effect, dictated by the environment or atmosphere to be found within the school and community.

There was, however, a fairly distinct pattern (or modus operandi) which, in a general way, was followed by all schools. In essence, this general pattern was composed of three identifiable parts, or phases. These were (1) the exploratory phase, (2) the developmental phase, and (3) the operational phase. These are described briefly in the following paragraphs.

PHASE I

GETTING READY

In the beginning, someone in a decision-making capacity must be exposed to the concept and underlying philosophy of flexible modular scheduling. There must be, at a decision-making level, an awareness or realization of a genuine need to free the school (teachers and students) from the bonds of the lock-step, five-by-six, type of schedule. This person will, of course, usually be the superintendent or principal, and, hopefully, both.

However, it is rarely possible for an innovation of this nature to be introduced by means of an unilateral decision. Other administrators, teachers, board members, lay leaders, and students must be involved. It is possible, however, that an administrative decision can be made as a result of a felt need in the school to cooperatively study the purposes, operation, and feasibility of the innovation. This decision, so it appears, should be made initially by the administrator and his board. In essence, this represents a tentative decision to "find out more about scheduling for flexibility."

Once the tentative decision has been made, the exploratory phase should evolve into a fairly comprehensive orientation program. All of the participating schools agree that there is no substitute for thorough orientation, and that the orientation should include

(1) faculty-wide in-service programs.
(2) visitations by faculty or staff personnel.
(3) utilization of resource people to come into the school.

Prior to any school undertaking extensive scheduling modifications there needs to evolve an identification of the educational goals or objectives which, it is hoped, the schedule modification will permit or facilitate. There must have developed some dissatisfactions on the part of the faculty (at least a majority of the members) with the present schedule. There should exist some visible, agreed upon reasons for making schedule changes. Changing the school schedule should not be viewed as a goal in and of itself but rather as a means of accomplishing something the school agrees needs to be accomplished.

Early in its interest in new patterns of scheduling the school should identify potential sources of consultant assistance. College or university personnel who have engaged in previous scheduling efforts, computer centers, computer programmers, administrative personnel of schools having experience with modular scheduling, and teachers who have had similar experience, are possible valuable sources of help.

The exploratory phase is concluded when a decision to proceed with the development of a flexible schedule has been made.

DEVELOPING THE COMPUTER-GENERATED MODULAR SCHEDULE

PHASE II.

Once the school decides to develop a flexible schedule it becomes imperative that decisions, of a more finite nature than those made in the exploratory phase, be made, and that a more definitive type of planning takes place.

Collectively, the administration and teaching staff must consider and define the various parameters of the several aspects of school organization. Consideration must be given to the number of modules to be used during the school day, the number of days to be used in a given cycle, how long the modules should be, and so on. Again, even though decisions of this type are administrative in nature, participating schools see a highly beneficial aspect in the inclusion of the total faculty in the basic decision-making process.

The administrative staff must, however, in the initial period of the developmental phase,

(1) inventory available facilities

(2) plan for needed modification or remodeling of existing facilities

(3) conduct an in-service education program designed to explore:

a- various modes of instruction (large group, small group, etc.)

b- appropriate materials for use by students and teachers.

c- time and space needs for various types of instruction (labs, demonstrations, lectures, etc.)

d- skills the teacher will need in working with individuals, small groups and large groups

The teacher and administrator will need to arrive at a series of decisions, mutually compatible, concerning:

(1) how much time is required in a given instructional cycle

(2) how the time is to be utilized (divided)

(3) how much time should be allotted for independent study

(4) what materials are needed to guide students in profitable use of independent study time

(5) how much teacher time will be left unscheduled for work with individuals and small groups

(6) how the teacher can best utilize his own "unscheduled" time

During the development phase each school should have available on a consultative basis, the services of a person trained in computer scheduling technology. The major responsibility of this consultant should be that of advising the administration and faculty:

(1) about limitations and restrictions that might be imposed by the computer.

(2) in developing the several printed forms needed for registration procedures.

(3) in the development of detailed information for students about course offerings, course requirements, and procedures for use in preregistration (It is at this stage that students will preregister.)

(4) to insure that subject numbers, which are assigned for computer use, coincide with the numbers on the master list.

(5) in the preparation of computer input data relating to special facility requirements.

(6) in the preparation of comprehensive course descriptions, or course data packets, for each course offered. (Descriptive information must include time requirements including how frequent the class is to meet, length of the class period and the nature of the instructional activities.)

The consultant will also need to be available later for consultation

(7) regarding some modifications to the original planning necessitated by the initial computer output data when it is received by the school. Modifications of this nature may be necessitated by unforeseen conflicts in teacher assignment, room assignment conflicts, and student-class conflicts. Conflicts such as these will require additional administrative decisions and perhaps a more sophisticated system of priority assignments. The revised data is then reintroduced into the computer, and another set of output data is obtained.

The consultant will also need to work with the administration and faculty

(8) when the final schedule is produced by the computer and is scrutinized in terms of unscheduled time, overloads, and unmet student requests. If deemed necessary, final "hand modifications" should be made.

USING
A
MODULAR
SCHEDULE

PHASE III

During the implementation of the modular schedule, every effort should be made to insure that everyone (including faculty, students, patrons, and parents) is thoroughly familiar with the "ground rules" of the operation. At the same time, equal care should be exercised to insure that everyone is thoroughly familiar with the educational goals and objectives.

There will be, in all probability, a period of adjustment, regardless of the degree to which pre-planning has taken place. During the adjustment period both teachers and students will, in most instances, benefit from counseling and guidance. It is at this time that administrative leadership becomes a critical factor. It is, in the final sense, the administrator who must provide the help and understanding that brings the modular schedule from the realm of the unknown to a workable, comfortable reality.

SOME PROMISING RESULTS

In modifying their schedules participating schools were concerned with

(1) ways in which students could be given an opportunity to assume a greater degree of responsibility for their own learning.

(2) ways in which the mode of instruction could be more closely related to specified needs.

(3) ways in which a more effective utilization of time and space might be achieved.

(4) ways in which there could be a more effective utilization of all resources necessary in the overall teaching-learning process.

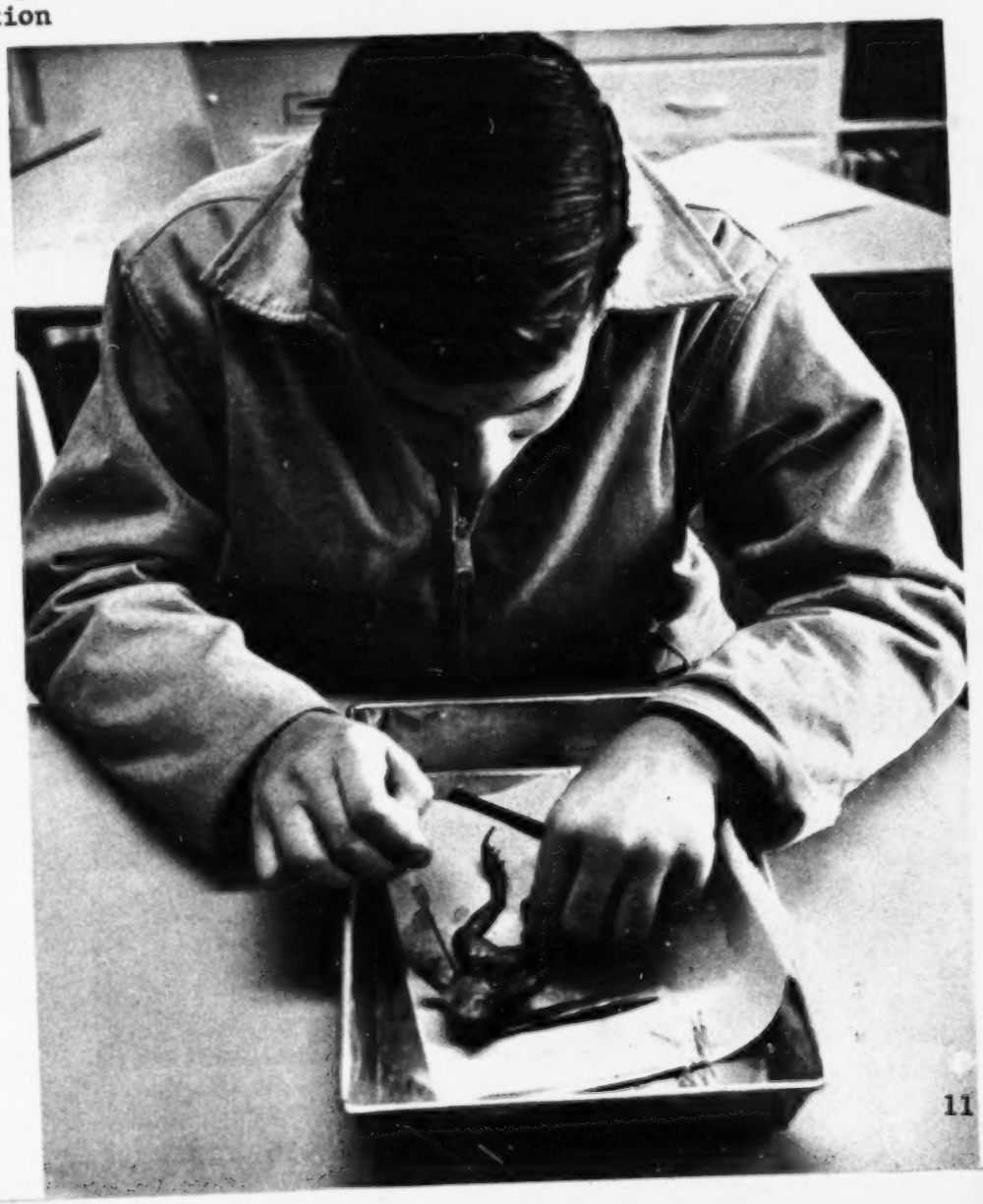
HERE'S WHAT HAPPENED

The curricular offerings have been increased. Students in this small high school are studying advanced math, advanced science, humanities, foreign languages - not previously available.

Time has been provided for all teachers to supervise and direct individual projects. This has been especially valuable in fields such as art, music, home economics, and vocational agriculture.

Library circulation has increased from 3759 volumes in 1963 to 5478 volumes in 1965.

It has been possible to lengthen the school's "learning day" to a full eight hours; this in itself represents a twenty-five percent increase in utilization



An "open laboratory", for students working individually, exists in every department.

Students have a choice of going to a social area, to the library, to an open laboratory or visit other classes during free time.

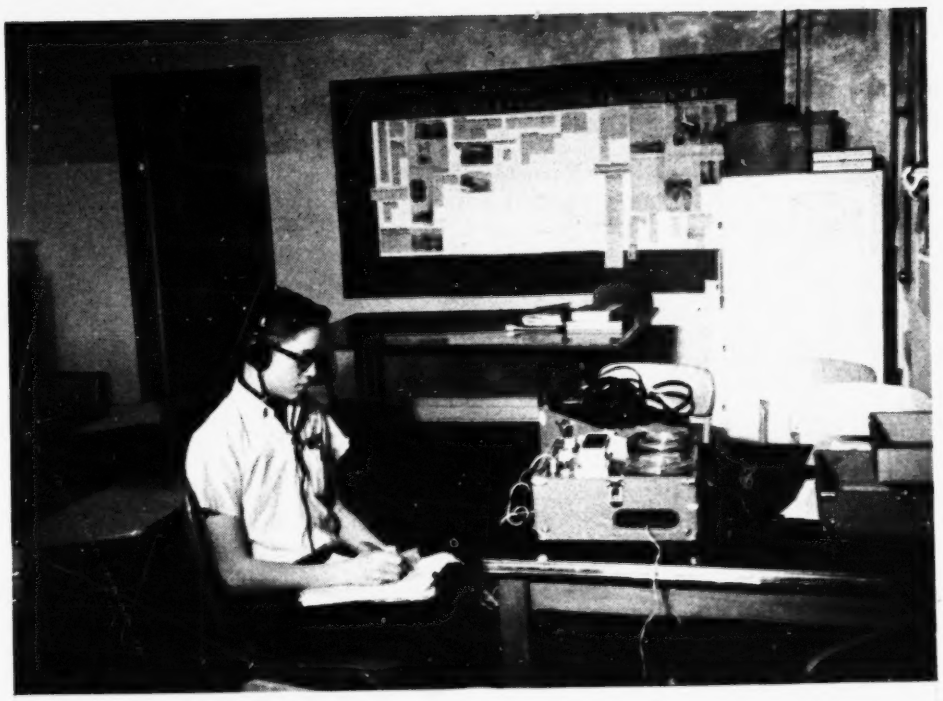
Students are given more opportunity to make decisions related to their own learning.

Instead of the typical "classroom lecture" type of instruction, there are now at least eight modes, or types, of instruction in operation.

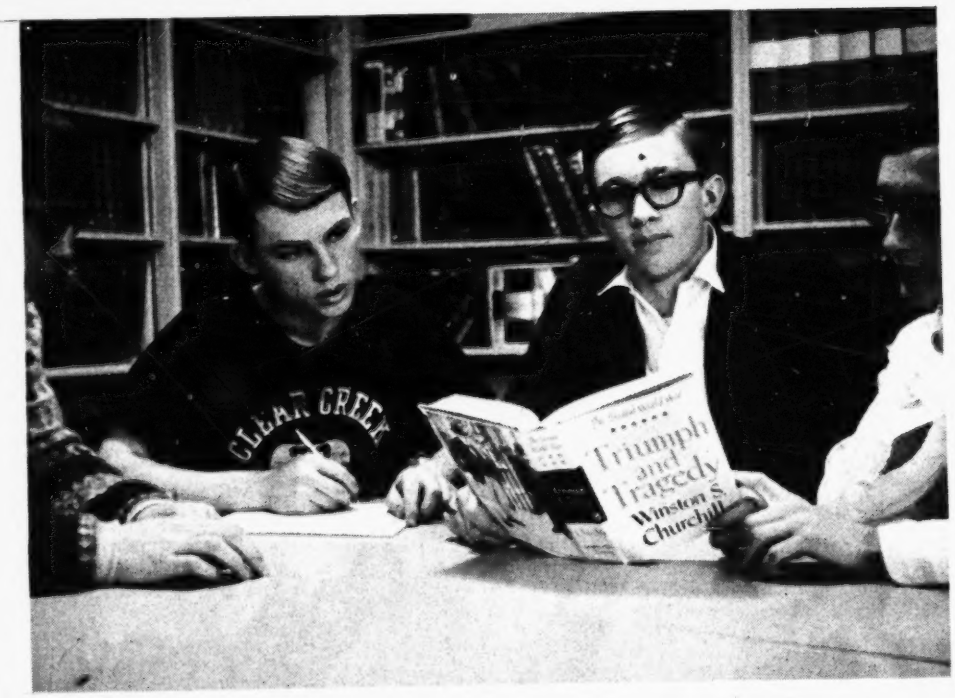
Student discipline problems in the classroom have been drastically reduced.

Student attendance has improved, (in one school perfect attendance rose from three students in 1963 to twenty-three in 1964-65.)

Teachers now have considerably more time in which to prepare, plan and meet with individual students.



There has been an increased utilization of a variety of instructional media by both teachers and students.



Seminars and small group discussions have been greatly increased and facilitated.

Minor remodeling has provided suitable spaces

for independent study

for easy access
to materials and equipment

A new role for the teacher has developed. Instead of an "imparter of knowledge" the teacher has become a director of learning.

IN CONCLUSION

Because of the increased number of learning alternatives available to the student, a more meaningful approach to decision-making, on the part of the students, has developed. Students must make basic decisions relating to the courses which are to be taken, and must then make further decisions relating to many activities within the course.

In short, the school, within a modular scheduling framework, is providing an opportunity for students to become more self-directive in terms of the student's time as it relates to the educational program.

Because the philosophy on which the computer generated schedule is based encourages the filtering out, so to speak, of those learning activities which are most suited to group instruction, it has been possible to schedule a fairly large proportion of the student day for independent study. Time is thus provided for teachers and students to interact, and in effect bring about a more efficient utilization of the total school day.

These then, are the perceived outcomes of the schedule modification efforts of the WSSSP and its participating schools.

In terms of the identified objectives, the outcomes have been good. Within the group of schools, most of the objectives have been met, even through the degree of achievement may well differ. At the same time, the fact exists that there are many unforeseen outcomes. Collectively, the positive outcomes, both planned and unplanned, far outweigh the negative ones.

STUDENT PROGRAM
Teacher Assignment

	MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY		
	COURSE	ROOM	TEACHER	COURSE	ROOM	TEACHER	COURSE	ROOM	TEACHER	COURSE	ROOM	TEACHER	COURSE	ROOM	TEACHER
1				TENNIS 816	SCI					TENNIS 816	SCI		PHYSICS 434	SCI	
2				TENNIS 816	SCI		BIOL 402	Music		TENNIS 816	SCI		PHYSICS 434	SCI	
3	SCI 467	SCI		GSCI 439	SCI		SCI 467	SCI		GSCI 439	SCI		SCI 467	SCI	
4	SCI 467	SCI		PHYS 434	SCI		SCI 467	SCI		GSCI 439	SCI		SCI 467	SCI	
5				PHYS 434	SCI					PHYS 434	SCI				
6				PHYS 434	SCI					PHYS 434	SCI				
7				SCI 407	AUD					SCI 407	AUD		ALG 301	SCI	Section II
8				PHYS 404	AUD					GSCI 409	AUD		ALG 301	SCI	Sec II
9	LUNCH			LUNCH			LUNCH		Sec. I-II	LUNCH			LUNCH		
10	ALG 361	SCI	Sec I-II	BIOL 462	SCI		ALG 361	SCI							
11	ALG 362	SCI		BIOL 462	SCI		ALG 362	SCI		ALG 362	SCI		ALG 362	SCI	
12	ALG 362	SCI		BIOL 462	SCI		ALG 362	SCI		ALG 362	SCI		ALG 362	SCI	
13				BIOL 432	SCI					BIOL 432	SCI				
14				BIOL 432	SCI					BIOL 432	SCI				
15	ALG 301	SSl	Sec. I	ALG 301	SCI	Sec. II	ALG 301	SSI	Sec. I	ALG 301	SCI	Sec. II	ALG 301	SSl	Sec. I
16	ALG 301	SSl		ALG 301	SCI		ALG 301	SSl		ALG 301	SCI		ALG 301	SSl	